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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/713,393	11/14/2003	Jea-Hyuck Lee	5000-1-496	9903
33942	7590	10/04/2006		
CHA & REITER, LLC 210 ROUTE 4 EAST STE 103 PARAMUS, NJ 07652			EXAMINER LEUNG, CHRISTINA Y	
			ART UNIT	PAPER NUMBER
			2613	

DATE MAILED: 10/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/713,393	Applicant(s) LEE ET AL.	
	Examiner Christina Y. Leung	Art Unit 2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-9 is/are allowed.
- 6) ☒ Claim(s) 10-12 is/are rejected.
- 7) ☒ Claim(s) 1, 10 and 11 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>9-25-06</u> . | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Objections

2. Claims 1, 10, and 11 are objected to because of the following informalities:

The “)” (parenthesis mark) after the words “office” and “splitter” in lines 2 and 5 of claim 1, and after the word “splitter” in line 2 of claim 11 should be removed.

In claim 10, the phrase “an remote node” in line 5 of the claim should be changed to “a remote node” for grammatical reasons.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ota (US 5,523,879 A) in view of Kato et al. (US 6,697,414 B1) and Vanoli et al. (US 5,712,716 A).

Regarding claim 10, Ota discloses a wavelength division multiplexed passive optical network system (Figures 6, 7, 12, 24A, and 24B), comprising:

a central office to output a downstream optical signal (i.e., one of nodes 3 shown in Figures 6 and 7 which outputs downstream to other nodes);

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a plurality of subscriber units to output upstream optical signals (i.e., the plurality of other nodes 3 shown in Figure 6 and 7 which output upstream to the “central office” node); and an remote node (star coupler 11 as shown in Figure 7) to divide the downstream optical signal received from the central office into multiple downstream optical signals having the same power, transmitting the multiple downstream optical signals to the subscriber units, and outputting the upstream optical signals received from the subscriber units to the central office (column 10, lines 41-46),

wherein at least one of the subscriber units comprises:

an optical transmitter (including light source 20a or 20b as shown in Figure 12; column 11, lines 30-52) including a semiconductor optical amplifier 116x-z and a grating 119 located at a predetermined distance from the semiconductor optical amplifier (Figure 24A), the optical transmitter transmitting an upstream optical signal of a pre-set wavelength resonating between the SOA and grating (column 19, lines 12-48); and

an optical receiver (including light receiving unit 24a or 24b as shown in Figure 12) including an optical detector for detecting light (column 11, lines 52-59).

Ota discloses that the optical transmitter includes a semiconductor optical amplifier 116 together with a diffraction grating 119 as shown in Figure 24A but does not specifically disclose that the grating is a reflection-type optical fiber grating. However, various types of diffraction gratings are known in the optical communications art, as Ota already acknowledges (column 17, lines 65-67; column 18, lines 1-3). Furthermore, Kato et al. also teach an optical transmitter that is related to the one disclosed by Ota including a semiconductor optical amplifier 16 and a grating 14 (Figure 1), and they further teach specifically that the grating comprises a reflection-

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type optical fiber grating (column 4, lines 12-67). It would have been obvious to a person of ordinary skill in the art to specifically use a fiber grating as taught by Kato et al. in the system disclosed by Ota as an engineering design choice of a way to effectively implement the optical transmitting element already disclosed.

Further regarding claim 10, Ota do not specifically disclose that the optical receiver includes another optical fiber grating, but Vanoli et al. teach a system that is related to the one disclosed by Ota including transmitting and receiving optical signals (Figure 1). Vanoli et al. further teach filters 11 or 39 comprising gratings for transmitting only a downstream optical signal of a pre-set wavelength among multiple downstream signals to a corresponding optical receiver (Figure 1; column 8, lines 1-9; column 10, lines 59-67; column 11, lines 1-8). Although Vanoli et al. teach gratings and do not further specifically teach fiber gratings, again, various types of diffraction gratings are known in the optical communications art and Kato et al. teach a fiber-type grating as discussed above. It would have been obvious to a person of ordinary skill in the art to use a grating as taught by Vanoli et al. in the system described by Ota in view of Kato et al. in order to ensure that the optical signal of only the desired wavelength is accurately received by a corresponding optical receiver. It also would have been obvious to a person of ordinary skill in the art to use a specifically fiber grating as taught by Kato et al. for this purpose in the system described by Ota in view of Kato et al. and Vanoli et al. as an engineering design choice of a way to effectively implement the optical grating element already suggested.

Regarding claim 11, Ota further discloses that the remote node comprises: an optical power splitter (i.e., star coupler 11 as shown in Figure 7) including a first port coupled to the optical fiber, and a plurality of second ports, wherein the optical power splitter divides the

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downstream optical signal from the optical fiber into the multiple downstream optical signals having the same power, transmits the multiple downstream optical signals to the subscriber units through the second ports, and outputs the upstream optical signals received from the subscriber units to the optical fiber (column 10, lines 41-67; column 11, lines 1-29).

Regarding claim 12, Ota further discloses that each of the subscriber units (i.e., nodes, one of which is shown in detail in Figure 12) further comprises a wavelength selectable coupler 23 to separately output the upstream optical signal received from the optical transmitter, and separately output the downstream optical signal received from the remote node to the optical receiver (column 11, lines 30-67; column 12, lines 1-13).

Allowable Subject Matter

5. Claims 1-9 are allowed.

6. The following is a statement of reasons for the indication of allowable subject matter:

The prior art, including Ota, Kato et al., and Vanoli et al., do specifically disclose or fairly suggest a system including the combination of all the elements and limitations recited in claims 1-9, particularly including a central office including a power splitter and a plurality of transceiver modules with all the specific limitations as recited in independent claim 1.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christina Y. Leung whose telephone number is 571-272-3023.

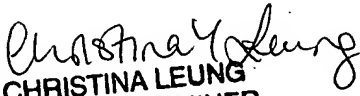
The examiner can normally be reached on Monday to Friday, 6:30 to 3:00.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 571-272-3022. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-2600.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


CHRISTINA LEUNG
PRIMARY EXAMINER